

Material Safety Data Sheet (ANSI form)

Section1 : Chemical Product and Company Identification

Product Name : Developer Yellow (D0749680)
General Use : The Image Formation of Printing Machine or Copier
MSDS Number : 888751
Company Name : Ricoh Americas Corporation
Department :
Address : 5 Dedrick Place, West Caldwell, NJ 07006
Telephone : 1-973-882-2000 or 1-973-882-5218 (For product information) or
Number : 1-800-336-6737 (For emergencies)
Telefax Number : 1-973-882-3959
E-mail : environmentinfo@ricoh-usa.com

Section2 : Composition, Information on Ingredients

Ingredients CAS No./Common Name	Chemical Formula	Contents (%)	ACGIH (TLV)			OSHA (PEL)	
			TWA	STEL	C	TWA	C
66402-68-4 Ferrite (Iron Oxide 50~ 90%、Manganese Oxide 14~45%)	Not Identified	75-95	N.A	N.A	N.A	N.A	N.A
Confidential Polyester Resin	Confidential	1-20	N.A	N.A	N.A	N.A	N.A
76199-85-4 Organic Pigment	C16H11N5O 4	<1	N.A	N.A	N.A	N.A	N.A
1344-28-1 Aluminum Oxide	Al2O3	1-10	10mg/m3	N.A	N.A	15mg/m3	N.A

This product does not contain any of the following substances as ingredients.
Cadmium, Hexavalent Chromium, Mercury, Lead, Polybrominated biphenyls (PBB), Polybrominated diphenyleters (PBDE), SVHC (substances of very high concern: published by ECHA).
And if it contains any impurities, it does not exceed any of the thresholds of RoHS.

Section3 : Hazards Identification

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆				
HMIS	Health : 1	Flammabilit : 1	Reactivity : 0	PPE:See section 8
		y		
NFPA	Health : 1	Flammabilit : 1	Reactivity : 0	
		y		

The Most Important Hazards

Adverse Human Health Effects :

There are no significant hazards expected with intended use.

Potential Health Effects

Primary Entry Routes :

Inhalation ; No

Skin ; No

Ingestion ; Yes

Environmental Effects :

There are no significant hazards expected with intended use.

Physical and Chemical Hazards :

There are no significant hazards expected with intended use.

Specific Hazards :

Dust explosion (like most finely divided organic powders)

Main Symptoms :

Acute Inhalation Toxicity

Exposure to excessive amount of dust may cause physical irritation to respiratory tract.

Acute Oral Toxicity

Low acute toxicity in animal experiment.

Acute Eye Irritation

May cause transient slight irritation.

Acute Skin Irritation

May be non-irritant.

Sensitization

There are no significant hazards expected in animal test. (There are few report to allergy-related conjunctivitis and allergy-related cutitis has developed in human.)

Chronic Effect

It was reported slight pulmonary fibrosis upon chronic inhalation exposure in rat to a toner in 4mg/m3 everyday for 2 years. No pulmonary change was found at 1mg/m3. These findings are showing exposure to excessive amount of powder may cause of a damages to lungs. However, normal use and handling of this product, as intended, does not result in inhalation of excessive amounts of powder.

Carcinogenicity

This product does not contain the substances classified as carcinogenic by NTP, IARC or OSHA.

Medical Conditions Aggravated by Exposure

Not applicable

Classification of the Chemical Product

This mixture is not classified as dangerous.

Section4 : First Aid Measures

Inhalation :
Remove from exposure to fresh air and rinse mouth with water. Seek medical advice.
Skin Contact :
Wash thoroughly with soapy water.
Eye Contact :
Flush with a large amount of water until particle is removed. Seek medical advice.
Ingestion :
Drink several glasses of water to dilute ingested toner. Seek medical advice.
Immediate Medical Attention :
Immediate medical attention is not required.

Section5 : Fire Fighting Measures

Flash Point (degrees centigrade) : Not applicable
Burning Rate (mm/sec) : Not available
Autoignition Temperature (degrees centigrade) : Not available
Flammable Limits(%) : LEL Not available UEL Not available
Extinguishing Media to Avoid :
Not applicable
Specific Hazards :
Can form explosive dust-air mixtures when finely dispersed in air.
Fire-Fighting Instructions / Specific Method :
No special fire protecting method is required. Generally by sprinkling or extinguisher.
Protection of Firefighters :
Wear gloves, glasses, a mask if necessary.

Section6 : Accidental Release Measures

Personal Precautions :
Do not breath dust as possible.
Environment Precautions :
Do not wash away into sewer and watercourses.
Methods for Cleaning Up :
Confirm there is no source of fire and if there is a source, remove it. Sweep slowly spilled powder and clean remainder with wet cloth.

Section7 : Handling and Storage

Handling :
Technical Measures/Precautions
Not applicable
Safe Handling Advice
Do not handle at area where is wind blows, it may cause of enter dust into eyes.
Avoid breathing dust.
Storage :
Technical Measures
Not applicable
Storage Conditions
Keep out of reach of children.
Keep in dry, well-ventilated area and do not keep this product over 35 degrees centigrade for long time to maintain quality. Avoid direct sunlight.
Packaging material
Not applicable
Specific Use(s) :
The image formation of printing machine or copier

Section8 : Exposure Controls/Personal Protection

Technical measures :
 Use adequate ventilation. None required with intended use.

Control Parameters

Exposure Limit Value (I)

USA OSHA PEL:	15mg/m3 (Total dust)	5.0mg/m3 (Respirable fraction)
(TWA)		
ACGIH TLV (TWA)	: 10mg/m3 (Inhalable fraction)	3.0mg/m3 (Respirable fraction)
DFG MAK	: 4.0mg/m3 (Total dust)	1.5mg/m3 (Respirable fraction)

Personal Protection

Respiratory Protections (Specify Type)

 None required in normal use. If the limit of exposure concentration is exceeded, use authorised respirator.

Eye Protection

 Put on goggles if necessary.

Protective Gloves

 Use vinyl or rubber gloves if necessary.

Protective Clothing or Equipment

 Wear chemical-resistant apron or other impervious clothing if necessary.

Hygiene Measures

 Wash hands after handling.

Section9 : Physical and Chemical Properties

Appearance

Physical state : Solid

Form : Powder

Colour : Yellow

Odor : Slightly plastic odor

pH : Not applicable

Boiling Point (degrees centigrade) : Not applicable

Vapor Pressure (Pa) : Not applicable

Vapor Density (AIR=1) : Not applicable

Density (g/cm3) : Approx. 5 Measuring Temp (degrees centigrade) : 25

Formula Weight : Not applicable

Melting Point (degrees centigrade) : (Softening point) Approx.110

Decomposition temperature (degrees centigrade) : Not available

Viscosity (Pa·s) : Not applicable

Volatile (%) : 0

Evaporation Rate (Butyl Acetate = 1) : Not applicable

Water Solubility (g/L) : Insoluble

Section10 : Stability and Reactivity

Stability :
 Stable

Hazardous Reaction :
 Dust explosion, like most finely divided organic powders.

Condition to Avoid :
 Not applicable in normal use.

Materials to Avoid :
 Not applicable in normal use.

Hazardous Polymerization :
 None

Hazardous Decomposition or Byproducts :
 Decomposition products will not occur.

Section11 : Toxicological Information

Acute Toxicity
Acute Oral Toxicity (LD50) :
5000 or over [mg/kg] (Rat) (Based on other product test results of similar ingredients.)
Acute Dermal Toxicity :
Not available
Acute Inhalation Toxicity :
Not available
Local effects
Acute Skin Irritation(PII) :
1.0 or below (Rabbit) (Based on other product test results of similar ingredients.)
Acute Eye Irritation :
Not available (Ingredients are not classified as dangerous according to Directive 67/548/EEC.)
Sensitization
Acute Allergenic Effects :
Non-skinsensitive (Mouse) (Ingredients are not classified as dangerous according to Directive 67/548/EEC.)
Specific Effects
Carcinogenicity :
This product does not contain the carcinogenic substances which are listed on NTP, IARC and OSHA.
Mutagenicity : Negative (Based on other product test results of similar ingredients.)
Reproduction Toxicity : Not include substance which listed on hazardous characteristics of reproductive toxicity.
Teratogenic : Not available

Section12 : Ecological Information

Mobility : No data are available on the adverse effect one environment.
Persistence/Degradabilit : Not available
y
Bioaccumulation : Not available
Ecotoxicity
Acute Toxicity for Fish (LC50) : Not classified as toxic (EU Directive 1999/45/EC)mg/l/96hr
Acute Toxicity for Daphnia : Not classified as toxic (EU Directive 1999/45/EC)mg/l/48hr (EC50)
Algae Inhibition Test (IC50) : Not classified as toxic (EU Directive 1999/45/EC)mg/l/72hr

Section13 : Disposal Consideration

General information:
Used developer should be disposed in an environmentally appropriate manner and accordance with governmental regulations.

Disposal methods:
Disposal recommendations are based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal. Confirm disposal procedures with local regulations.

Precautions
Do not throw the cartridge or developer unit or plastic bag or developer into an open flame. Hot toner included in developer may scatter and cause burns or other damage.

Section14 : Transport Information

International Regulations

Land Transport

RID/ADR : Not applicable

DOT 49 CFR : Not applicable

ADNR : Not applicable

Sea Transport

IMDG Code : Not applicable

Air Transport

ICAO-TI/IATA-DGR : Not applicable

UN Number : Not applicable

Class : Not applicable

Specific Precautionary Transport Measures and Conditions

Avoid direct sunlight in quality.

Section15 : Regulatory Information

Regulations

US Information

Information on the label : Not required

TSCA (Toxic Substances Control Act) :

All chemical substances in this product comply with all applicable rules or order under TSCA.

SARA (Superfund Amendments and Reauthorization Act) Title III

313 Reportable Ingredients : Not regulated

California Proposition 65 : Not regulated

Canada Information

WHMIS Controlled product : Not a controlled product

EU Information

Information on the label (1999/45/EC and 67/548/EEC)

Symbol & Indication : Not required

R-Phrase : Not required

S-Phrase : Not required

Special Precautions under 1999/45/EC Annex V : Not required

76/769/EEC

This product complies with applicable rules and regulations under 76/769/EEC

Section16 : Other Information

Explanation of Hazardous Materials Identification System [HMIS]& National Fire Protection Association [NFPA] Hazard Rating Systems:

Both the HMIS and NFPA systems use number from "0" to "4" to show the degree of hazard in an uncontrolled situation:

0=Minimum Hazard 1=Slight Hazard 2=Moderate Hazard 3=Serious Hazard 4=Severe Hazard

Colors may also be used in both systems:

Blue=Health Hazard Red=Fire Hazard Yellow=Reactivity Hazard White=Indicate a special hazard

HMIS will specify any Personal Protective Equipment required [PPE],

NFPA will specify OX(oxidizer), Acid(acid), ALK(Alkali), COR(Corrosive), W(use no water), xx(Radioactive).

Literature References :

ANSI Z400.1-1993

ISO 11014-1

Commission Directive 91/155/EEC

IARC (1996) "IARC Monograph on the Evaluation of the Carcinogenic Risk of Chemicals to Humans, Vol.65, Printing Process and Printing Inks, Carbon Black and Some Nitro Compounds", Lyon, pp149-261

H.Muhle, B.Bellman, O.Creutzenberg, C.Dasenbrock, H.Emst, R.Kilpper, J.C.MacKenzie, P.Morrow, U.Mohr, S.Takenaka and R.Mermelstein(1991) "Pulmonary Response to Toner upon Chronic Inhalation Exposure in Rats" Fundamental and Applied Toxicology 17,pp280-299

IARC (2008) "IARC Monograph on the Evaluation of the Carcinogenic Risk of Chemicals to Humans, Vol.93"

NIOSH CURRENT INTELLIGENCE BULLETIN "Evaluation of Health Hazard and Recommendation for Occupational Exposure to Titanium Dioxide DRAFT"

ACGIH-TLV : Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices

OSHA Z-Tables : US Department of Labor, 29CFR Part 1910 , Tables Z-1, Z-2, and Z-3

NTP (USA) : US Department of Health and Human Services National Toxicology Program Annual Report on Carcinogens
DFG-MAK (GER) : DFG List of MAK and BAT Value

Symbol (EC) : EU Directive 67/548/EEC

91/155/ EEC : EU Directive 91/155/ EEC

1999/45/EC Annex V : EU Directive 1999/45/EC

76/769/EEC : EU Directive 76/769/EEC

EC 304/2003 : Regulation (EC) No 304/2003 of the European Parliament and of the Council of 28 January 2003 concerning the export and import of dangerous chemicals

WHMIS Controlled product : Canada Workplace Hazardous Information System

OELs-TWA (Australia) : Guidance Note on the Interpretation of Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC: 3008 (1995)]

Abbreviations :

OSHA PEL PEL (Permissible Exposure Limit) under Occupational Safety and Health Act

ACGIH-TLV TLV (Threshold Limit Values) under American Conference of Governmental Industrial Hygienists

REACH EC)No.1907/2006:Council Regulation concerning the Registration, Evaluation, Authorization and Restriction of Chemicals

SVHC Substances of Very High Concern

ECHA The European Chemicals Agency

DFG-MAK MAK (Maximale Arbeitsplatz Konzentrationen) by Deutsche Forschungs Gemeinschaft

RoHS Restriction of the use of certain Hazardous Substances in Electrical and Electronic Equipment

TWA Time Weighted Average

IARC International Agency for Research on Cancer

NTP National Toxicology Program

WHMIS Workplace Hazardous Information System

NOHSC National Occupational Health and Safety Commission Act 1985

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